Supplier relationship management and firm performance in Developing Economies: A moderated mediation analysis of flexibility capability and ownership structure

Abstract:

Collaborative practices between firms and their suppliers are becoming increasing important in the light of short product life cycles, intense global competition, the need for sustainability, and the ever-increasing demands of customers. Although supplier relationship management (SRM) and its purported benefits have been widely studied in the literature, most of the studies have focused on examining its direct relationship with firm performance. Interestingly, there is scare research on the applicability and effectiveness of such relationships in less developed countries. Thus, we use data collected from firms in Ghana, a less developed country, and apply rigorous, robust, and consistent analytical procedures to examine moderated-mediation relationships between SRM, operational flexibility, ownership structure, and firm performance (FP). We demonstrate that operational flexibility capability mediates the supplier relationship management – firm performance link. Additionally, our moderated mediated analyses show that SRM's influence on firm performance is stronger for locally-owned firms (domestic) than foreign owned firms, indicating that domestic firms stand to gain more from investments in SRM than firms with foreign ownership. This finding is particularly interesting and vital given that locally owned firms might not have the needed resources to invest in SRM practices and thus, the need for these firms to comprehend the benefits and advantages of SRM.

Keywords: Supplier relationship management, Ownership structure, Flexibility capability, Ghana, Moderated mediation

1. Introduction;

Supplier relationship management (SRM) is an avenue through which buyers and suppliers seek competitive advantage in the marketplace, tapping into each other's resources as a result of the formation of alliances (Lii and Kuo, 2016; Liao et al., 2010). SRM represents the purposeful management of relationships between buyers and suppliers to ensure, at the minimum, needed supplies of the right quality and quantity are obtained in a timely fashion. Other aspects of SRM include engagements in product design, material selection, innovation, information sharing, technology investments and long-term cooperative arrangements. With the global supply chain environment becoming increasingly competitive, these collaborative practices are key to attaining competitive advantage (Lii and Kuo, 2016; Whipple et al., 2015; Tseng, 2014; Liao et al., 2010). Thus, SRM helps firms gain access to valuable resources and supplies, reduce costs, enhance their flexibilities, ensure quality, implement technology successfully, and improve overall supply chain performance.

Increasingly, SRM has become vital in the buyer-supplier dyad because of the dynamics inherent in the global supply chain environment (Zhang and Cao, 2018). These dynamics, such as changes in demand patterns, inflationary pressures, currency fluctuations, governmental policies, among others, create conditions of supply uncertainty. For example, in periods of high supply uncertainty, establishing and strengthening relationships with suppliers creates potential benefits such as gaining access to needed supplies, reducing transaction costs, and reducing risks of opportunism that are offered by contract enforcing mechanisms (Zhang and Cao, 2018; Yang et al., 2016). However, developing and maintaining those relationships are obviously not without cost. Thus, this study seeks to provide evidence on *how* SRM provides benefits specifically to the buyer (i.e., focal) organization. We answer this "*how*" question by examining the links between SRM, flexibility capability, and firm performance. Addressing this

question is particularly relevant in less developed economies where firms might not have the know-how or resources needed to "invest" in joint relationships. At the same time, firms need to realize that relying on their internal resources alone might not be sufficient to achieve competitive advantage (Alfalla-Luque, Medina-Lopez and Schrage, 2013b).

Several studies have examined the impact of ownership structure (e.g. foreign versus domestic) on the operations and performance of firms (e.g., López-Bayón et al., 2018; Alfaro and Chen, 2012, Filatotchev et al., 2008; Aydin et al., 2007; Girma and Görg, 2004).These studies have primarily focused on investigating the impact of foreign direct investments (FDI) on host country productivity, labor growth and wage growth. In addition, research on ownership structure and operations management have mostly been confined to examining family versus non-family differences (e.g., Anderson and Reeb, 2003; Zahra, 2003). However, both family and non-family firms within a given country might not have any foreign owners and thus, will not benefit from advantages associated with foreign ownership. Therefore, this study looks at firm ownership from a foreign versus domestic perspective with the focus on differences that might exist on how relationships are managed with suppliers and the resulting impact on performance.

Prior research on SRM posit that SRM has a significant impact on firm capability and performance (Tseng, 2014, Fynes et al., 2008). Other studies also assert that the nature of ownership (e.g. foreign versus domestic or owner characteristics) has an impact on enterprise decisions and performance (Bhutta, Rana and Asad, 2008). Interestingly, studies that examine how ownership structure impacts the link between supplier relationship management and firm capability are missing, creating a gap in the literature. In addressing this gap, we develop and test a model that suggests that the impact of supplier relationship management on the flexibility capability of the buyer firm will be moderated by the ownership structure of the firm. In other words, we seek to ascertain, if domestic firms benefit to the same extent from investments in supplier relationship management as firms with foreign ownership. This is a very important issue that needs to be considered when making strategic decisions given the shifting landscape

on global supply chain strategies among firms. For example, as firms in developed countries look beyond China and other Asian countries for sources of production capacity, the question of interest is whether they will use the same supplier relationships management arrangements and if so, will the expected benefits be the same?

Contingency theory suggests that firms are likely to alter their strategies and resource positions when operating in global markets so as to achieve performance goals (Prater and Ghosh, 2006; Fawcett and Closs, 1993). Regardless of whether the foreign firm operates as a global, international, multinational, or transnational organization (Bartlett and Ghosal, 1991), and how it configures its supply chain, supplier relationship management is expected to be central to the performance of the firms. Similarly, domestic firms, often with their limited resources, need to know if they will benefit from investments in relationships with their suppliers as they structure their procurement arrangements from the traditional arms-length practices to those based on long-term strategic and interdependent relationships (Fynes et al., 2008).

The rest of the paper is structured as follows. We first present a review of the relevant literature. This is followed by a discussion of the theoretical arguments in support of the hypotheses. We then present our methodology followed by the data analysis and results. The paper continues with a discussion of the results. We end the paper with our conclusions, limitations and opportunities for future research.

2. Literature Review

This study focuses on supplier relationship management, its impact on firm performance and the roles that flexibility operational capability, and ownership (foreign versus domestic owned) play in that relationship.

2.1 Supplier Relationship Management and Flexibility capability

As noted earlier, SRM has become increasingly important due to growing levels of outsourcing occurring within global supply chains (Bag, 2018; Tseng, 2014; Girma & Görg, 2004). This is because as

the business environment continues to grow increasingly competitive, firms are realizing the need to outsource non-core products or activities, while allocating most of their resources and capabilities to their core competencies (Bag, 2018; Li et al., 2017; Westphal and Sohal, 2013; Lankford and Parsa, 1999). SRM plays an important role in enabling the firm to respond to dynamic and unpredictable changes occurring in the business environment. Changing global trends such as worldwide sourcing and shorter product life cycles, have made the management of supplier relationships "strategic assets" (Tseng, 2014, p39). Keen competition in the business environment requires that firms look beyond internal operational effectiveness and emphasize the ability of responsive sourcing and collaborative engagement for value creation and delivery within the supply chain (Zhang and Cao, 2018; Liao et al., 2010).

Firms are also expected to depend on their flexible networks of suppliers to deliver a wide range of products (Mason et al., 2002). Hence, supply flexibility is becoming a critical competitive priority in managing the complexity and uncertainty associated with the changing needs of the market. Managing these supplier relationships requires cross-functional and cross-firm business processes with appropriate levels of information sharing, operational coordination and select close partnerships" (Leuschner et al., 2013; p. 34). In other words, collaborative relationships between firms and their suppliers that emphasize joint investments, joint improvement projects, information sharing, multiple points of contact, product development, joint development of production and scheduling plans and the joint resolution of problems are expected to enhance competitive capabilities for all partners (Vanpoucke et al., 2014; Zimmermann and Foerstl, 2014; Saeed et al., 2011; Flynn et al., 2010). For example, Cisco and Xiao Tong (a distributor of Cisco products in China) implemented an inter-organizational information system (IOS) in 2002 that allowed Xiao Tong to gain rapid access to Cisco's specific product configuration data, purchase orders and invoices while enhancing accuracy of the data received (Lu et al., 2006). Xiao Tong became more competitive because it gained access to the latest technology used by its competitors. Cisco, in turn, benefited from the opportunity to expand its information systems to its global supply chain partners. This

joint investment provided Cisco with the opportunity to assess how its technology will be accepted in foreign locations given that its implementation at Xiao Tong was the first such integration in China.

Emphasizing the flexibility capability in the supply chain to gain competitive advantage, Sanchez (1995) posits that flexibility capability of firms must be strategic and realized in the form of resource flexibility and coordination flexibility. Here, resource flexibility is considered to be the extent of responsive ability through the use of organization-specific knowledge and physical assets. Essentially, it is the nature and design of resources that firms own that also constrain the ways in which firms can use their resources. However, in reality, not all resource capabilities automatically flow to the firm that ‘‘possesses’’ the resource. Hence, the issue of coordination flexibility augments the extent of responsiveness from the use of inter-organizational collaborative capabilities. Competition nowadays is perceived at the supply chain level rather than at the individual firm level (Prajogo, Chowdhury, Yeung, and Cheng, 2012). Hence, developing and maintaining mutually beneficial relationships with suppliers have become crucial to firms' ability to remain competitive in the market, especially in environments of uncertainties such as pertains in developing economies (Zhang and Cao, 2018; Prajogo et al., 2012). The increasing dependence of firms on their suppliers, in today's global world, has highlighted the need for effective supplier relationship management (Kannan and Tan, 2002).

SRM also involves identification of performance measures, agreement on those measures, performance monitoring and control, and use of incentives to achieve goals (Leuschner et al., 2013; Lee, 2000). SRM is particularly important now in view of shorter product life cycles, increased product and process innovation, and the heterogeneity of customer demands (Bozarth et al., 2009). Thus, firms must adjust their partnerships to adapt to the increasing complex and high variability environment through increased cooperation and coordination (Gulati et al., 2012). Enhancing information flow facilitates the ability to sense the market as well as enhance the ability to detect trends and properly align strategies to the environmental changes (Saeed et al., 2011; Robey et al., 2008)

2.2 Firm ownership and firm performance

There is a plethora of studies on firm ownership structure (e.g., foreign ownership versus domestic ownership) and its impact on performance goals such as productivity, profitability or export orientation (Alfaro and Chen, 2012, Girma and Görg, 2004). For example, Manova and colleagues observed that foreign subsidiaries and joint ventures in China demonstrate superior export performance in financially vulnerable sectors in comparison with private domestic firms (Manova et al., 2015). This finding corroborates previous literature on multinational companies' affiliates being less credit constrained due to their guaranteed available resources abroad in countries where their parent companies operate. In Europe, Weche (2011) used enterprise-level data from 2007 to 2008 and reported that, on average, foreign owned firms (FOF) are larger and more productive, offer higher wages, more often are involved in exports, and invest more in research and development (R&D) relative to domestic German firms. Wagner and Weche (2012) further argued that FOF may have access to superior technologies belonging to their parent companies that might increase their efficiency and assist in outperforming locally or domestically owned counterparts.

Bhutta, Rana and Asad (2008) noted that ownership characteristic such as educational level, habits, and number of partners impact the financial health of family-owned businesses in Pakistan. Some of these characteristics might impact decisions on the types of relationships to develop with suppliers. At the same time, business firms that are family-owned are not only prone to less planning but also do invest fewer assets back into the firm. This can be partly due to the lower education levels of owners leading to inability to gather information needed to make informed decisions (Attahur and Saffu, 2005). Such lower levels of internal investments might dictate the need for reliance on suppliers for critical resources. Further, Girma and Görg (2004) investigated whether differences existed in the determinants of outsourcing and productivity effects of outsourcing between domestic establishments and foreign-owned establishments within the manufacturing sector in the United Kingdom. They concluded that foreign owned firms are more likely to outsource than domestic owned firms and productivity gains from

outsourcing for foreign owned firms were found to be less compared to those of domestic owned firms. This is because foreign firms, which are in most instances part of multinational companies, usually use higher levels of technology compared to pure domestic or locally owned firms, due to their access to firm specific assets of their parent companies (Markusen, 1995). The use of high technology may engender contracting out of activities, specifically low technology activities. Outsourcing is likely to occur within the vertically linked plants in the same multinational if there is specialization of activities. On the other hand, such specialization and outsourcing of activities may be less for domestically or locally owned firms. Similarly, Alfaro and Chen (2012) observed that foreign owned firms tend to outperform domestic owned firms in periods of economic crises, particularly for foreign firms that are more vertically integrated. A plausible argument for these performance differences, which forms part of the motivation of our study, was to ascertain if the linkages that foreign owned firms have with their parent organizations facilitate the transfer of managerial know-how to their subsidiaries, diminishing the need for strengthened supplier relationships.

This study is aimed at presenting findings from a less developed country environment where opportunities for domestic firms to look beyond their boundaries might be limited. Moreover, most of the studies on foreign ownership and firm performance have been conducted within the economics and the finance disciplines (e.g., Douma et al., 2006) with very few studies within the manufacturing sector. We seek to deviate from that mode and examine the impact of foreign ownership on firm performance from a supply chain perspective. The focus of this paper is not on the broad examination of foreign ownership or foreign direct investment on macroeconomic outcomes such as labor growth, wage rates or productivity growth (e.g., Waldkirch and Ofosu, 2010). Rather, we are interested in the firm level decisions that impact the firm's ability to compete and attain its performance goals through its relationships with suppliers. We need to point out that other forms of ownership exist and have been examined in the literature. For example, López-Bayón et al. (2018) examined the moderating impact of cooperative ownership structures on the relationship between geographical indications (a form of supply chain

governance) and the quality of wineries and found that geographical indications' efficacy in promoting wine producers' quality is stronger in cooperative organizations than in investor -owned organizations.

3. Research Hypotheses and Model

3.1. Supplier relationship management and performance

Supplier relationship management is a deliberate and purposeful practice that firms engage in to manage their interactions with suppliers. It provides the opportunity for firms to improve communication, enhance cooperation, and build trust and inter-personal relationships while managing power-dependence relationships with their suppliers (Fynes et al., 2008; Olsen and Ellram, 1997). Although improved supplier relationship management has the potential to improve the operational capabilities of firms, the ultimate desire of managers is to have these relationships lead to success in terms of increased market share, sales growth and profitability (Hartmann, et al., 2012).

Additionally, strong relationships with suppliers enable buyers to gain access to critical resources that otherwise might be impossible without those relationships. As noted by Zhang and Cao (2018) firms with that engage in such collaborative practices are likely to share resources such as technical expertise for joint training or advertise their products and services jointly among supply chain partners As a result, buyers through alliances with suppliers can take advantage of supplier competencies to build competitive capabilities and achieve superior performance, especially in periods of high business uncertainty. In fact, for firms to be successful in managing their supply chain they must not only rely on their internal resources but also possess the capability to tap into resources from external partners (Alfalla-Luques et al., 2013b; Leuschner et al., 2013). This is where the resource dependency theory comes into play. The resource dependency theory (RDT) suggests that the opportunity to gain unique and valuable resources through collaborative relationships with others leads to mutual benefits that enhance the competitive capabilities of the firms. Thus, improved information flows and exchanges that support operational processes such as forecasting, and production planning as well as joint investments in innovative

activities contribute to organizational performance (Zhang and Cao, 2018; Lii and Kuo, 2016; Klein et al., 2007).

It is often presumed that the focal organization (manufacturer) will have a dominant position in the relationship among supply chain partners. That is, the manufacturer places numerous burdens on suppliers and other partners in the supply chain to make investments towards process integration and information sharing to enhance supply chain performance (Leuschner et al., 2013; Schloetzer, 2012; Krause et al., 2007). Prior research suggests that suppliers in the buyer-supplier arrangements often feel that they did not receive an equitable share of the benefits accruing from the relationship, leading to suspicion of lack of parity in the relationship (Nyaga et al., 2010). However, given the harsh and unstable business environment facing firms in Ghana, as characterized earlier, suppliers become aware of the vulnerability of Ghanaian manufacturers (with Ghanaian manufacturers having less negative information about their suppliers). This vulnerability creates information asymmetry which may negatively impact the performance of firms in Ghana (Brinkhoff et al., 2015). However, given the preponderance of the arguments that partnerships enhance performance, we propose that:

Hypothesis 1*: Supplier relationship management is positively related to firm performance.*

3.2. Mediating role of flexibility capability

Suppliers sometimes provide buyers with information on trends in new materials and processes that buyers can use to alter their mix of product offerings, thereby increasing the flexibility capability of the firm (Tsinopoulos and Mena, 2015). SRM has the potential to improve the quality of information that is exchanged, enabling the buyer to anticipate market trends and respond to changes in the marketplace and thus, enhance its flexibility (Vanpoucke et al., 2017). Efforts made to improve information sharing enhances the ability of buyer firms to introduce products quickly, reduce lead times, and improve delivery performance. In particular, given that over 50% of all raw materials needed for operations in Ghana are imported from Europe and Asia, information sharing becomes critical given the geographic dispersion of

the suppliers (Huo et al., 2014). Further, the development of long-term contracts and cooperative arrangements with suppliers help to offset concerns about inability to obtain access to credit facilities, concerns about increased supply costs, and supply risks.

These arguments are also consistent with the relational view of the firm, an off shoot of the resource-based view of the firm theory. The relational view theory suggests that firms, working as partners, stand to gain complementary resources that ultimately lead to competitive advantage through investments in relations-specific assets (He et al., 2017; Chen, et al., 2013; Leuschner et al., 2013; Dyer and Singh, 1998). The theory proposes that the complementary resources possessed by a firm's suppliers and the relationships developed with those suppliers will jointly provide competitive advantage to both the buying and selling firms (Zhang and Cao, 2018; Van Weele and Van Raaij, 2014).

Supplier relationship management also provides the opportunity to lower supply disruptions, minimize risk exposure, reduce transaction costs, and achieve performance goals (Um and Kin, 2018; Jack and Raturi, 2002). We seek to show in this study that among the benefits buyer firms stand to gain through enhanced supplier relationship management is increased flexibility capability. A component of flexibility is the ability to introduce new products quickly into the marketplace in order to meet changing customer demands. Prior research asserts that focal companies who involve their suppliers in new product development and other innovative activities are able to speed up the product introduction process since the suppliers are able to prepare adequately in advance for the material needs of the new products (Lii and Kuo, 2016; Handfield et al., 1999). We argued earlier that investments in supplier relationships improve the performance of firms and that we expect this to hold true where supply chain risks might either be high or where theory such as transaction costs economics might suggest that other buyer-supplier arrangements might be more beneficial. While this contributes significantly to the literature and provides guidance to managers, we seek to contribute further to theory development by proposing that SRM has an indirect effect on firm performance through flexibility capability. That is, we expect a significant

component of the direct relationship between SRM and performance to be mediated by flexibility capability.

We define flexibility capability as the extent to which a firm is able to adjust effectively to changing conditions in the business environment, such as increased global competition, technological advances, customer demands and other conditions as discussed in the introductory section of this paper. Enhanced flexibility capability indicates that a firm can adjust to these changes with minimal effort and least cost (Devaraj et al., 2012; Jack and Raturi, 2002). Flexibility is important to firms in Ghana because of the harsh economic and business environmental situations. Several studies have documented the strategic impact of flexibility on firm competitiveness with some of these dating back to the early discussions of Hayes and Wheelwright (1984) and Gerwin (1993). More recently, others have argued that competitive capabilities, such as flexibility, are expected to contribute to the business performance of the firm (Rosenzweig and Easton, 2010; Jack and Raturi, 2002, Vickery et al., 1999).

Flexibility capability has several components. The most common types of flexibility are volume, product mix, and ability to introduce new products quickly. We focus primarily on volume and mix flexibility in this study. A producer or operator has high volume flexibility if it is able to change the quantities it produces quickly in response to changes in customer demand. Product mix flexibility deals with the ability to change the mix of product or service offerings in response to customer demands. This includes the ability to customize the product or service for the customer, offer products/services with multiple dimensions, features, and options (Vickery et al., 1999). Both mix and volume flexibility capabilities can be enhanced through investments in lead time reduction, machine setups, adoption of just-in-time and lean practices, research and development, flexible worker hours, and as argued earlier enhanced engagements with suppliers. Over time, flexibility capabilities become "embedded in operational competencies, routines, and processes; and therefore, make them difficult to develop or imitate" (Kristal et al., 2010, p. 419), contributing to improved organizational performance.

The extant literature has shown that a firm that is able to change its flexibility very quickly in producing different volumes and different mix of products without much added cost or delays in response to changing customer demands or competitor actions will gain more customers, achieve sales growth, and increase its profitability, all things being equal (Kristal et al., 2010; Rosenzweig and Easton, 2010; Yusuf et al., 1999). Therefore, flexibility capability can also enhance a firm's competitive posture and increase its profitability in the short term (Vickery et al., 1999). The perceptions that the company always has what the customer needs and/or that its products have the features (e.g., new technology with the Apple iPhone or Samsung Galaxy) will increase the firms' market performance. Thus, we propose the following hypothesis.

Hypothesis 2*: Flexibility capability mediates the relationship between supplier relationship management and firm performance.*

3.3. The moderating role of ownership structure in the relationship between supplier relationship management and firm performance.

It is expected that, in a buyer-supplier relationship, partners will have full knowledge about information exchanges, have the ability to process all the information appropriately, and/or become aware of say alternate suppliers (López-Bayón et al., 2018; Slack and Lewis, 2011). Thus, the ability of buyer firms in Ghana to utilize partnership information while tapping into the resource base of the supplier to enhance their capabilities might be dependent on the firm's ownership structure. These arguments are similar to those posited by López-Bayón et al (2018) when they sought to explain why the impact of governance mechanisms on firm capability might be dependent on the ownership structure.

Creating and maintaining supplier relationships could be resource intensive (Goffin et al., 2006) and, domestic firms, just by the nature of their size, might not have the resources to investigate all available options in order to arrive at the best solutions, for example, as might pertain to both contractual and non-contractible arrangements. Conversely, firms that have some foreign ownership might have the ability to attract and retain highly skilled and experienced workers even when the labor pool is mostly local. A

plausible reason might be the perception that foreign owned firms offer higher job stability and better compensation (Weche, 2011). As a result, foreign owned firms are able to leverage the skills they possess to exploit the resources facilitated by the buyer-supplier dependencies. Moreover, foreign owned firms might also be able to utilize technology spill overs from their parent firms to access information and other resources that could be used to enhance the buyer-supplier relationship, thus, improve the flexibility capability of the firm. Furthermore, foreign owned firms, who are more likely to be multinational in nature can be expected to use higher levels of technology than purely domestic firms, since these firms (foreign owned) have access to firm-specific assets that can be tailored toward managing supplier relationships (Wagner and Weche, 2012; Girma and Görg, 2004; Markussen, 1995).

And, if the foreign establishment is part of a vertical multinational enterprise there will be specialization of activities and, by definition, outsourcing of activities to vertically linked plants within the same multinational (Girma and Görg, 2004). Such specialization of activities may be less for purely domestic firms who might not possess the needed resources for such specializations. Moreover, given that foreign owned firms are likely to be embedded in an international production network through their relationship with the parent organization and other affiliates, they may be expected to have different experiences related to dividing in-house and outsourced production, which can be translated to SRM processes (Girma and Görg, 2004).

The supplier relationship management literature suggests dependency and power dominance have an impact on the buyer-supplier relationships (Brinkhoff et al., 2015; Tsinopoulos and Mena, 2015; Benton and Maloni, 2005; Cox, 2004). For example, using a multi-method approach, Tangpong et al (2008) demonstrated that the impact of buyer–supplier relationships on buyer performance was not uniform across relationships but it depended on the power-distance dimension and the risk of opportunism. This assertion is echoed by Cox (2004) who noted that "there is no single way of managing business relationships for a buyer that is always appropriate in all circumstances" (p. 346). Buyer firms with foreign ownership, more so than purely domestic firms, might either have more experience with

supplier relationship structures or possess a history of relationships that may be used to minimize contractual risks. We, thus, state our third hypothesis as follows.

Hypothesis 3*: The indirect effect of supplier relationship management on firm performance, through flexibility capability, is moderated by ownership structure, such that the indirect effect is stronger for local firms than for foreign firms.*

Figure 1 presents the proposed research model where all the hypothesized relationships are indicated as positive (+ve)

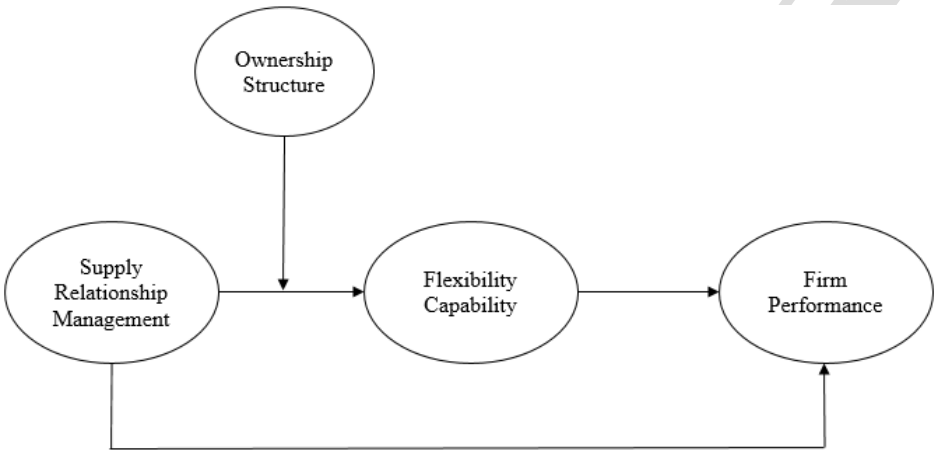

Fig. 1. Research Model

4. Methodology

4.1 Data Collection

As indicated earlier data for this study was collected from firms in Ghana. The targeted respondents (informants in this case) were expected to be knowledgeable senior level employees within the firms. There considered to be knowledgeable in two areas of interest: strategic management issues as well as the supply chain/operations management function within their organizations (Um and Kim, 2018; Van Weele and Van Raaij, 2014). A questionnaire, made up of previously used validated measures (described in detail later) for the different constructs, was used as the means of data collection. The sample population consisted of executives from firms in the Greater Accra-Tema Metropolitan Area (GAMA) where most industrial firms in Ghana are located, and from the Sekondi-Takoradi area which has become a hot-bed of industrial activity in Ghana because of the recent discovery of oil within the shores of that region. A sample of students

pursuing an MBA program with concentration in supply chain and operations management and three faculty members whose expertise are in supply chain and operations management were asked to check the questionnaire for clarity, ease of completion and readability. Their suggestions were used to make appropriate modifications to the questionnaire prior to distribution to the informants.

Mail surveys are not likely to result in high response rates in Ghana, so survey questionnaires were distributed to graduate students pursing an executive MBA programs at a national university in Ghana. These students were enrolled in classes in operations management, operations strategy, and project management and most were also working fulltime. The students were asked to distribute the questionnaires to the executives in their firms who were best qualified to answer the questions. The students therefore served to ensure that the individuals filling the questionnaires were knowledgeable and competent to answer the questions posed. The students had the responsibility of collecting the completed surveys and returning them to the researchers.

The data collection took place over a three-month period and comprised of multiple phases. The first phase limited the effort to firms mostly in the Greater Accra Metropolitan Area (GAMA) of Ghana. This resulted in the receipt of 120 completed surveys. Follow-ups with those who had not responded resulted in the receipt of an additional 35 surveys. The researchers then decided to expand the geographic base of the sample population and 50 questions were distributed to firms within the Sekondi-Takoradi metropolitan area. This effort resulted in the receipt of 30 completed surveys. The respondents were assured of the anonymity of their responses and their firms in any published results. In all, 250 surveys were distributed and a total of 185 were returned, resulting in a response rate of 74%. However, the data analysis (discussed later) is based on 149 completed responses, representing a usable response rate of 59.6%. This high level of response rates provides assurance of the absence of systematic bias from the informants (Klein et al, 2007). We checked for non-response bias by testing the firm size, industry type, and ownership structure of early informants against late informants and found no statistical differences on those measures (Armstrong and Overton, 1977; Lambert and Harrington, 1990). A quick comparison of the distribution of

firms within the Ghana Business Directory and the distribution of firms in our sample showed no significant differences, indicating that our sample could be considered representative of the population of firms. Demographic information on the firms and respondents is shown in Table 1.

[TABLE 1 ABOUT HERE]

4.2 Measures

We adapted previously validated items from the literature to develop the questionnaire for this study. The items for supplier relationship management were adapted from several different sources including Liao et al. (2010), Qi et al. (2011), and Swink et al. (2005). They dealt with investments in supplier certification; sharing of information with suppliers; the establishing of long-term contracts with suppliers; and the pursuit of joint investments with suppliers. Flexibility capability refers to the ability of a firm to achieve superior performance with regard to changing output volumes quickly; the ability to change product mix in response to market changes, and the ability to reduce operations throughput time (Wagner, Grosse-Ruyken and Erhun, 2018; Schoenherr et al., 2012; Swink et al., 2005). Similar to Youndt *et al.* (1996), we chose to use self-reported performance measures. Firms in Ghana are not often called upon to provide financial data to researchers and as such, gaining access to objective data from company sources is extremely difficult. The use of self-reported perceptual performance measures is quite common in operations management research (Jack and Raturi, 2002; Ward and Duray, 2000; Gupta and Somers, 1996; Youndt et al.; 1996). Thus, firm performance was assessed by asking the informants to indicate the extent to which their firm's performance compared with that of their competitors in terms of market share, growth rate in sales, and overall profitability. These are among the most widely used business performance measures in supply chain research (Qi et al., 2011; Swink et al., 2005, Jack and Raturi, 2002). All the items were measured on Likert-type scales ranging from 1 "far worse" to 5 "far better."

4.3 Scale validity and reliability

We assessed the construct validity of our measures by examining dimensionality, convergent validity and discriminant validity. We estimated a three-factor measurement model consisting of supplier relationship management, flexibility capability, and firm performance and found out that the measurement model fits the data well. The fit indices for the three-factor model, that is, $\chi^2(24) = 34.012$, with a probability of 0.084, comparative fit index (CFI) = 0.981, Tucker-Lewis index (TLI) = 0.971, root mean square error of approximation (RMSEA) = 0.059, and standardized root mean squared residual (SRMR) = 0.056 were all within the acceptable limits (Hu and Bentler, 1999). Moreover, each item loaded significantly on its respective construct ($p< 0.001$). The average variance extracted (AVE) of all our constructs were between 0.585 – 0.713, which were greater than the 0.5 minimum acceptable value (Bagozzi and Yi, 1988), confirming convergent validity. To test the dimensionality of our model, we compared our hypothesized model with two alternative models (i.e., one-factor and two-factor models) using the chi-square difference test. The one factor model, which consisted of all item loadings, produced a poor fit $\chi^2(27) = 194.585$, with a probability of 0.000, CFI = 0.682, TLI = 0.576, RMSEA = 0.227, and SRMR = 0.138. In the two-factor model, we combined items relating to flexibility capability and supplier relations management into a single factor while leaving items associated with firm performance as another factor. Although the fit of the two-factor model produced a better fit ($\chi^2(26) = 144.498$, p-value < 0.001, CFI = 0.775, TLI = 0.688, RMSEA = 0.195, and SRMR = 0.124) relative to the one-factor model it performed poorly compared to our hypothesized three-factor model. The chi-square difference tests between the one-factor model and our hypothesized three-factor model produced $\Delta\chi^2 = 160.57$; $\Delta df = 3$; $p < .001$, and between the two-factor model and three-factor model also produced $\Delta\chi^2 = 110.49$; $\Delta df = 2$; $p < .001$ showed statistical significance. These results further support and confirm our measurement model. The results are shown in Table 2.

[TABLE 2 ABOUT HERE]

Reliability values indicate the degree to which items consistently measure the construct and are free from random error. Our composite reliability index for our constructs shown in Table 2 exceeded the recommended cutoff point of 0.8 (Hulland, 1999), showing support for construct reliability for our variables. Establishing discriminant validity provides an indication that each construct is uniquely different from other constructs in the model and that each construct captures a phenomenon not captured by other constructs. The Fornell-Larcker criterion compares the square root of the AVE values of each construct and its correlations with other constructs (Fornell and Larcker, 1981). Within each of the three possible pairs of constructs as displayed in Table 3, the square root of the AVE of a construct exceeded the coefficients representing its correlation with other constructs. Cumulatively, the results in Tables 2 and 3 show support for overall measurement quality and as such adequate for further analysis.

[TABLE 3 ABOUT HERE]

4.4. Common method variance.

We tested for common method variance (CMV) using Lindell and Whitney's (2001) marker variable method to ensure CMV is not a serious threat in our survey dataset. This technique was employed in a post hoc manner since we did not define a marker variable *a priori* (Lindell and Whitney, 2001). Using the second lowest correlation (0.097) as a more conservative estimate of a proxy marker-variable and equations (4) and (5) in Lindell and Whitney (2001, p.116), we computed CMV-adjusted correlations. The results do show that all previously significant correlations remained statistically significant even when CMV was controlled. Moreover, we also performed the conservative version of Harman's (1967) single factor test, as suggested by Malhotra et al. (2006), to examine if a significant amount of variance was common across all items. Our result shows poor fit for the single factor (χ^2 (27) = 194.585, with a probability of 0.000, CFI = 0.682, TLI = 0.576, RMSEA = 0.227, and SRMR = 0.138.). The chi-square difference tests between the single factor model and our hypothesized model was highly significant ($\Delta\chi^2$ = 160.57; Δdf = 3; $p < .001$). Based on the above results, we conclude that the impact of common method variance does not have a substantial effect on our study.

5. Analyses and Results

Our hypotheses were tested in two interlinked steps. We first investigated the mediation model (i.e., Hypotheses 1 and 2). Next, we then added the moderator variable to the mediation model and empirically tested the moderated mediation hypothesis (i.e., Hypothesis 3). In Hypothesis 1, we examined the impact of supplier relationship management on firm performance. Controlling for firm size, our result showed supplier relationship management has a positive and significant relationship with firm performance (β = 0.20, t = 2.75, p< 0.01) as displayed in Table 4. Thus, we find support for H1.

We tested our mediation hypothesis (H2) which suggests flexibility capability mediates the link between SRM and firm performance. Due to methodologists (Zhao et al., 2010; MacKinnon et al., 2004; Preacher and Hayes, 2004) identifying potential shortcomings in Baron and Kenny's (1986) multistep approach, we conducted our mediation analysis using Preacher and Hayes (2004) recommended bootstrapping application to facilitate the estimation of the indirect effect. The path from supplier relationship management to flexibility capability was positive and significant (β= 0.25, t = 2.95, p< .01) while the path from flexibility capability to firm performance was also significant and positive (β= 0.52, t = 5.96, p< .001). A bootstrapping approach with 5,000 repetitions revealed a statistically significant indirect effect of supplier relationship management on firm performance via flexibility capability (*indirect effect* = 0.13). In addition, the bootstrapped 95% confidence interval around the indirect effect did not contain zero ([0.05, 0.24], β= 0.52, t = 5.96, p< .001). Since the indirect effect (i.e., 0.13 = 0.25 x 0.52) and the direct effect (i.e., 0.20) both significantly exist and point in the same direction there is partial mediation (Baron and Kenny, 1986) or complementary mediation (Zhao et al., 2010). The significant direct effect between supplier relationship management and firm performance suggests the presence of other mediators that might help explain the relationship between supplier relationship management and firm performance. Results are displayed in Table 4.

[TABLE 4 ABOUT HERE]

Regarding Hypothesis 3, we predicted that the indirect effect of supplier relationship management on firm performance, through flexibility capability, is moderated by ownership structure, such that the indirect effect is stronger for locally owned firms than for foreign owned firms. To test the hypothesized first-stage moderated mediation model we mean centered our variables (Aiken and West, 1991) and examined the interaction or cross-product effect between supplier relationship management and ownership structure. Results indicated that the cross-product term between supplier relationship management and ownership structure was significant ($\beta = 0.29$, $t = 1.68$, $p < 0.1$). Applying conventional procedures for plotting simple slopes (see Figure 2) indicated that for locally owned firms, supplier relationship management produced relatively stronger and higher flexibility capabilities (*simple slope* = 0.36, $t = 3.72$, $p < 0.01$) than foreign owned where supplier relationship management did not produce any impact on flexibility capability (*simple slope* = 0.071, $t = .46$, $p = 0.64$).

[FIGURE 2 ABOUT HERE]

We examined the conditional indirect effect for locally owned and foreign owned firms using tests recommended by Hayes (2013). For foreign owned firms, we did not find the moderated mediation model to be significant (*indirect effect* = 0.04, *SE* = 0.07, 95% *CI* = [-0.07, 0.17]). We however found the moderated mediated model for locally owned firms to be significant (*indirect effect* = 0.19, *SE* = 0.06, 95% *CI* = [0.09, 0.33]). Bootstrap CIs corroborated these results (see Table 5). Thus, Hypothesis 3 was supported, indicating that supplier relationship management is more likely to influence firm performance via flexibility capability when firms are locally owned than when they are foreign owned.

[TABLE 5 ABOUT HERE]

6. Discussion and Conclusions

Supplier relationship management is important to buyer firms, especially in environments of high business uncertainty. This is because SRM provides a mechanism for buyer firms in those environments to either reduce the risks associated with supply uncertainty or gain access to resources, enabling them to

achieve production and service goals, and eventually improving their performance (Li et al., 2015). In this study, we defined supplier relationship management as the joint investments, the establishment of long-term contracts, and information sharing that occur between buyer firms and their suppliers. Our findings support the literature that suggests that SRM has a direct benefit on firm performance. Scholars have used a number of theories, including resource dependency theory to posit that collaborative engagements between firms and their suppliers yield benefits in the form of supply chain performance, operational capabilities, and overall firm performance (He et al., 2017; Lii and Kuo, 2016; Yang, et al., 2016; Li et al., 2015; Tseng, 2014; Prajogo, et al., 2012; Fynes et al., 2008). Despite these findings, little is known about the mechanisms and situations under which supplier relationship management's effect on a buyer firm's performance is enhanced. This study has demonstrated, through a rigorous methodology using a moderated-mediation approach that supplier relationship management is a major factor in enhancing firm performance, and that flexibility capability is a significant intervening (mediating) factor between SRM and firm performance. In other worlds, both SRM and flexibility capability are key strategic tools as well as significant attributes of competitive advantage that a firm should possess. Moreover, this study found that the indirect effect of supplier relationship management of firm performance through flexibility capability to be much more pronounced for locally owned firms than foreign owned firms. This finding suggests that the impact of supplier relationship management on firm performance through flexibility capability differs for foreign owned and locally owned firms.

6.1 *Contributions to the literature*

The objective of this study is to examine if and how supplier relationship management provides benefits to the buyer firm performance measured as improvement in market share, sales growth, and profitability. Thus, we tested the direct effects of supplier relationship management on firm performance followed by an examination of SRM's indirect effects via flexibility capability. Additionally, we

investigated the moderation effect of ownership structure (domestic and foreign) on the hypothesized indirect relationship.

This study makes two significant contributions to the literature. First, we provide evidence to show that supplier relationship management contributes both directly to firm performance and indirectly through flexibility capability. Flexibility capability strengthens the impact of SRM on firm performance as measured by market share, sales growth and profitability. This is a significant contribution in that it helps explain how SRM impacts firm performance and thus contributes to theory development. Although there are other operational capabilities (i.e., cost, delivery, and quality), we chose flexibility because recent studies in Ghana and similar environments seem to suggest that quality and low cost have now likely become "order qualifiers" even in less developed economies (Rosenzweig and Easton, 2010; Amoako-Gyampah and Meredith, 2007). To gain competitive advantage and win orders, firms need to gain competencies in areas such as flexibility and innovation. Also, we note that SRM's indirect effect on firm performance was partially mediated by flexibility capability, suggesting that there are other intervening factors (mediators) in that relationship and that a full comprehension of SRM's importance requires the identification and testing of mediators as dictated by theory (Zhao et al., 2010). Interestingly, our finding on the presence of other mediators in the supplier relationship management and firm performance link provides a plausible explanation for the mixed findings in research on the impact of SRM on firm performance. In fact, it could be possible that operational capabilities such as cost, quality, delivery and innovation either independently or in combination play mediating roles in the SRM- firm performance link. For example, within the logistics arena, the impact of buyer-supplier relationships on the performance of buyer firms might be dependent on the presence of logistical infrastructure or extent of technology availability within the environment.

Second, although moderated and mediated studies on the SRM – FP link exist in the literature, we have not seen studies that examined a moderated mediation model of the SRM – FP link in the same research. While studies have examined the impact of supplier relationship elements such as information

sharing, and supplier customization on flexibility (e.g. Vanpoucke et al., 2017; Devaraj et al., 2012), ours is among the few that have looked into the role that ownership structure (domestic and foreign) plays in that relationship. Previous studies (e.g., Girma and Görg, 2004) have noted that, within a particular country context, foreign owned firms outperform domestic owned firms. However, our non-intuitive findings show that domestic owned firms stand to gain more from SRM investments than foreign owned firms; this is a significant contribution to the SRM literature. Our conclusions are consistent with existing literature that argues that SRM's impact of firm performance might be contingent on the business environment (e.g. competitive intensity) of firms (Mahapatra et al., 2012; Cox, 2004). Several explanations are possible for this result. Firms with foreign ownership might possess relatively high levels of high dependence power with regard to their suppliers because of their asset size, culture and experience and thus, have no urgent need to invest in supplier relationships (Brinkhoff, et al., 2015; Girma and Görg, 2004; Cox, 2004). Moreover, the same power and other resources possessed by those firms might reduce the risk of opportunism from their suppliers. Additionally, those firms might be backed by contract enforcing mechanisms and institutional guarantees from their home countries that they can exploit to ensure supplier compliance in the periods of high uncertainty. Lastly, the foreign owned companies are likely to be multinational and might be able to exact some of the SRM benefits from their allied units in other locations. On the other hand, locally owned firms that don't have such power or resources are limited in their ability to regulate the actions of the suppliers toward the fulfillment of obligations and restrain opportunism by their suppliers and thus stand to gain more from investments in partnerships with the suppliers (Yanget al., 2016; Cox, 2004).

6.2. Managerial Implications

We have demonstrated that a close relationship between a buyer firm and its suppliers that entails joint investments, information sharing, and development of long-term contracts, would enable the buyer firm to improve on its ability to adjust the output volumes quickly in response to changing customer demand (He et al., 2017; Vanpoucke et al., 2017). Additionally, SRM processes augment the capability to

change the mix of products offered by firms to match changing trends in the market place. Thus, buyer firms stand to benefit in flexibility operations capability from SRM investments. We note that flexibility capability, as part of an overall focus on supply chain flexibility, has the potential to reduce the uncertainties associated with supply dysfunctions as well as reduce the response time and costs that might be associated with supply challenges (Schmenner and Tatikonda, 2005). We also provide evidence to managers that SRM both directly and indirectly (through flexibility) impacts firm performance in the form of market share, sales growth, and profitability.

SRM also comes at a cost and thus, managers in domestic owned firms might be reluctant to invest in those relationships. Information sharing capability might require investments in technology, and process modifications. Sharing production plans and schedules might expose the buyer firm to risk of opportunism and security breaches, and long-term contracts require a commitment based on trust and risk sharing. These shortcomings can be addressed if managers understand fully how SRM impacts firm performance and overall competitiveness. The findings of this study should inform buyer firm managers of the benefits that could accrue from investments in SRM even in periods of high uncertainty when those buying firms might be inclined to pull production inside in order to minimize transaction costs. Our findings also support the argument made by other researchers (e.g, Prajogo et al., 2012) who noted that in order to obtain benefits managers do not necessarily have to implement a broad range of SRM practices. Benefits can still be obtained from a subset of SRM practices. In summary, firms should establish, as a matter of principle, effective policies and procedures to collaborate with their suppliers, and utilize their internal resources as well as those of their suppliers to strengthen the collaborations (Hult et al., 2004).

6.3 Limitations and future research

Firms in Ghana tend to be concentrated in specific areas of the country and thus, we utilized a purposive sampling technique for data collection. The reality of data collection in environments such as in Ghana is that probability sampling is not possible. All the same, as explained earlier, the distribution of

the firms in our study is similar to others used in previous research in the same environment (e.g., Amoako-Gyampah and Meredith, 2007). Also, the response rate was fairly high, and the steps taken to minimize common method bias provide confidence in the findings. We focused only on flexibility capability and we urge future researchers to incorporate other operational capability measures such as quality, innovation and delivery since these additionally can serve as intervening variables. Investigating more mediators will strengthen theory in that it is possible that the strength of each capability variable might change in the presence of other mediators. Since data was collected in Ghana, other researchers are encouraged to consider additional countries with similar economic environments to see if the findings remain the same. This was a cross-sectional study in that we looked at SRM at a particular point in time. It will be advantageous to assess SRM's effect over time and furthermore investigating specific contingencies that might impact the SRM – firm performance relationship will be a fruitful area of research .

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Table 1: Profile of Firms & Demographic Data

A. Firm Size

No. of Employees	Frequency	%
Less than 50	57	38.3
50 – 99	20	13.4
100 -199	17	11.4
200 – 499	17	11.4
500 - 1000	12	8.1
More than 1000	15	10.1
Not specified	11	7.3
Total	**149**	**100**

B. Fixed Assets

Fixed Assets (millions)	Frequency	%
Less than 10	44	29.5
11 – 25	30	20.1
26 – 50	12	8.1
51 – 75	11	7.4
76 - 100	37	24.8
More than 100	1	0.7
Not specified	14	9.4
Total	**149**	**100**

C. Ownership structure

Ownership	Frequency	%
Local	87	58.4
Foreign	62	41.6
Total	**149**	**100**

D. Respondent's # of Years with Firm

No. of Years	Frequency	%
Less than 5	52	34.9
5-9	53	35.6
10-13	19	12.8
14-20	6	4.0
More than 20	2	1.3
Not specified	17	11.4
	149	**100**

Table 2. Measurement model (CFA) results

	Std. Estimates	SE	CR	AVE
Supplier Relationship Management (SRM)				
SI1: Sharing information with major suppliers	0.875	0.048	0.824	0.618
SI2: Establishing long-term contracts with suppliers	0.833	0.050		
SI3: Pursuing joint investments with suppliers	0.629	0.063		
Flexibility Capability (FC)				
FC1: Flexibility to change output volume	0.753	0.054	0.808	0.585
FC2: Flexibility to change product mix	0.750	0.054		
FC3: Manufacturing throughput time	0.791	0.051		
Firm Performance (FP)				
FP1: Market share of major product/line	0.765	0.043	0.879	0.713
FP2: Growth rate in sales	0.930	0.027		
FP3: Overall profitability of your firm	0.829	0.035		

Table 3. Correlation coefficients and discriminant validity

	Mean	Stand Deviation	FC	SRM	FP	AVE
FC	4.263	1.161	**0.765**			0.585
SRM	3.862	1.459	0.407	**0.786**		0.618
FP	4.358	1.232	0.692	0.412	**0.844**	0.713

The values on the diagonal (in bold) are the square root of average variance extracted (AVE). The off-diagonal values are the correlations between latent constructs.

Table 4. Regression Results for Mediation

	Flexibility capability			Firm performance			Hypotheses
Dependent Variable	β	SE	*t*	β	SE	*t*	
Constant	3.23	0.38	8.59**	1.30	0.40	3.25**	
Firm size	0.19	0.24	0.81	0.20	0.19	1.04	
SRM	0.25	0.09	2.95*	0.20	0.07	2.75*	**H1: supported**
Flexibility capability				0.52	0.09	5.96**	
R^2		0.09			0.38		
F		4.47**			21.20**		

	Bootstrapping effect	SE	95% CI (LL, UL)	
Indirect effect	0.13	0.05	0.05, 0.24	**H2: supported**

Note. Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. SRM = supplier relationship management; CI = confidence interval; LL = lower limit; UL = upper limit.

* $p < 0.05$; ** $p < 0.01$

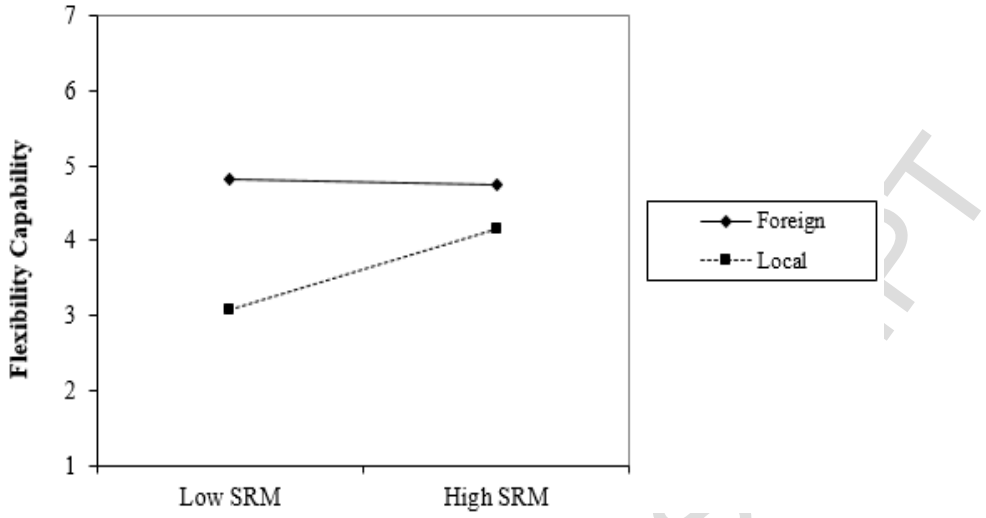

Figure 2. The interactive effect of supplier relationship management and ownership structure on flexibility capability

Table 5. Regression results for conditional indirect effect via flexibility capability

	Flexibility capability			Firm performance		
	Step 1			Step 2		
Dependent variable	β	*SE*	*t*	β	*SE*	*t*
Constant	4.20	0.11	38.83***	2.04	0.38	5.34***
Firm size	0.32	0.25	1.27	0.20	0.19	1.04
SRM	0.26	0.09	2.94**	0.20	0.07	2.75***
Own	-0.58	0.23	-2.60**			
Flexibility capability				0.52	0.09	5.96***
SRM X Own	0.29	0.17	1.68*			
R^2		0.17			0.38	
F		5.09***			21.19***	

Moderator: Own	Bootstrapping indirect effect	SE	95% CI (LL, UL)	Hypothesis
Foreign	0.04	0.08	-0.09, 0.21	
Local	0.18	0.06	0.09, 0.33	**H3: supported**

Note. Unstandardized regression coefficients are reported. Bootstrap sample size = 5,000. SRM = supplier relationship management; Own = ownership structure; CI = confidence interval; LL = lower limit; UL = upper limit. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$